

WHAT IS CLAIMED IS:

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1. A method for routing calls to a destination gateway to establish a communication session call in a telecommunications network over a path supported at least in part by a telephone network and an IP network, said IP network including a plurality of ingress and destination gateways, at least one proxy server, and at least one redirect server (RS), said method comprising the steps of:
- a) receiving a call setup request at the at least one proxy server from a source user agent;
 - b) forwarding the received call setup request to the redirect server to obtain routing information;
 - c) responding to the forwarded call setup request received at the redirect server by returning said routing information or a request failure response;
 - d) proxying the call setup request by the at least one proxy server to a destination gateway selected from said routing information upon receiving the routing information from the redirect server;
 - e) upon proxying the call setup request by the at least one proxy server to the selected destination gateway, waiting for a response at the at least one proxy server from the selected destination gateway;

f) upon said at least one proxy server receiving the response from the selected destination gateway within a predetermined time, establishing a communication session using said selected destination gateway; and

g) if the response is not received within the predetermined time, sending the call setup request to a succeeding destination gateway selected from the routing information.

2. The method as claimed in claim 1, further comprising repeating steps (d) to (g) until a destination gateway is determined to be available for establishing said communication session or until all destination gateways from said routing information have been determined to be unavailable.

3. The method as claimed in claim 1, further comprising the step of recording a destination gateway status as out-of-service if the response from said destination gateway is not received within said predetermined time.

4. The method as claimed in claim 3, wherein said step of recording records said destination gateway status as out-of-service in a gateway information table stored within the RS.

Sub A² 5. The method as claimed in claim 1, wherein said step of receiving a call setup request at the at least one proxy server from a source user agent includes the step of addressing said call setup request to a proxy address of the at least one proxy server.

6. The method as claimed in claim 1, wherein said step of receiving a call setup request at the at least one proxy server from a source user agent includes the step of counting a number of received requests subsequent to said call setup request at the at least one proxy server.

7. The method as claimed in claim 1, wherein the at least one proxy server comprises a Session Initiation Protocol (SIP) proxy server.

8. The method as claimed in claim 1, wherein the at least one proxy server comprises an H.323 gatekeeper.

9. The method as claimed in claim 1, wherein said step of responding to the forwarded call setup request from said at least one proxy server received at the RS includes determining the status of a group of destination gateways.

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The method as claimed in claim 9, wherein the status of each of said group or destination gateway is one of in-service and out-of-service.

11. The method as claimed in claim 10, wherein if the destination gateway status is recorded as out-of-service in a gateway information table and its associated time value is greater than a current absolute RS time, the gateway address is not added to a routing list of said routing information.

12. The method as claimed in claim 10, wherein if the destination gateway status is recorded as out-of-service in a gateway information table and its associated time value is less than or equal to the current absolute RS time, the gateway address is added to a routing list of said routing information and recorded as in-service.

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13. The method as claimed in claim 10, further including the step of sending a message from the RS to a network manager to record the status of a destination gateway.

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The method as claimed in claim 1, further comprising the steps of

forwarding a request failure response to the source user agent upon receiving the request failure response from the at least one proxy server, and terminating the communication session.

150 The method as claimed in claim 1, further comprising the step of re-sending the call setup request to the selected destination gateway a predetermined number of times when the response is not received within the predetermined time.

160 A system for allowing a call to be completed in a communication session between a calling party and a called party, which comprises:

- a first telephony system including at least one service user agent (SUA);
- a second telephony system including at least one destination user agent (DUA);
- an IP network connected between said first and second telephone systems,
- a plurality of ingress gateways for interfacing said IP network to said first telephony system;
- a plurality of egress gateways for interfacing said IP network to said second telephony system;

an IP telephony proxy server for selecting one of said plurality of egress gateways for completing said call;

an IP redirect server for providing routing information to said IP telephony proxy server; and

a network management system for receiving and storing status changes of destination gateways, said network management system being in communication with said IP redirect server.

170 The system as claimed in claim 16, wherein the IP telephony proxy server is a Session Initiation Protocol (SIP) proxy server.

180 The system as claimed in claim 16, wherein the IP telephony proxy server is an H.323 gatekeeper.

19. A method for detecting an available destination gateway from a plurality of destination gateways in an IP network for completing a communication session between a calling party and a called party, said method comprising the steps of:

a) transmitting a message to one of said plurality of destination gateways from a server to ascertain an availability status of said one of said plurality of destination gateways;

b) waiting for an acknowledge response from said one of said plurality of destination gateways for a predetermined period of time;

c) determining if said one of said plurality of destination gateways is available if said acknowledge response is received within said predetermined period of time; and


d) transmitting said message to a succeeding gateway of said plurality of destination gateways.

20. The method as claimed in claim 19, further comprising repeating steps (b) to (d) until the availability status of each of said plurality of destination gateways has been determined.

SUB A⁵ } 210 The method according to claim 19, wherein if said acknowledge response is not received within a predetermined period of time, said availability status of said destination gateway is said to be out-of-service.

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The method according to claim 19, wherein if said one of said plurality of destination gateways is determined to be available, then said availability status is determined to be in-service.

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